

Work Order ID 53560

November 9, 2009 10:35:47 AM



Page 1

Item ID: D212-664-201TRN

Accept



Setup Start



Revision ID: C

Stop



Item Name: Crosstube Turning Detail

Start Date: 09/11/2009 Start Qty: 1.00



Cust Item ID:

Required Date: 19/11/2009 Req'd Qty: 1.00

Customer:

Reference:

Approvals:

Process Plan:

PS

Date: 09-11-9

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run Start



Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D212-664-241	Rev C								

100

0.00



MORI SEIKI CNC LATHE LARGE

Mori Seiki

Memo

0.00

Mori Seiki CNC Lathe Large

1-Fill tube with sand & install plugs DT8534 on both ends as per Folio
FA114□2-Turn first side as per Folio FA114□3- File transition lines smooth.

Q.M. 09-11-26

110

0.00



QC1- Inspect dimensions to dimension sheet

QC

Memo

0.00

Quality Control

Q.M. 09-11-26

120

0.00



MORI SEIKI CNC LATHE LARGE

Mori Seiki

Memo

0.00

Mori Seiki CNC Lathe Large

1-Turn second side as per Folio FA114□2- File transition lines smooth.□3-
Remove sand and plugs□4- scribe batch # and part # as per dwg

Q.M. 09-11-26

Work Order ID 53560

November 9, 2009 10:35:47 AM



Page 2

Item ID: D212-664-201TRN

Accept



Setup Start



Revision ID: C

Stop



Item Name: Crosstube Turning Detail

Start Date: 09/11/2009 Start Qty: 1.00



Cust Item ID:

Required Date: 19/11/2009 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130 QC Quality Control	QC1- Inspect dimensions to dimension sheet Memo	0.00 0.00							
						0.01	09	-11	-260
140 QC Quality Control	QC8- Inspect parts - second check Memo	0.00 0.00							
						1			AWM 9-11-30
150 HandFXtube Hand Finishing Crosstubes	Crosstubes Chemical Conversion Memo Chemical Conversion Coat as per within 24 hours of machining	0.00 0.00							
						1			AWM 9-11-30

Work Order ID 53560

November 9, 2009 10:35:47 AM



Page 3

Item ID: D212-664-201TRN

Accept



Setup Start



Revision ID: C

Stop



Item Name: Crosstube Turning Detail

Start Date: 09/11/2009 Start Qty: 1.00



Cust Item ID:

Required Date: 19/11/2009 Req'd Qty: 1.00

Customer:

Reference:

Run Start



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	----------------	--------------	--------------	---------------	---------------	------------------	----------------

160

QC3- Inspect Part Finish

0.00

=> 509/11/30

QC

Memo

0.00

Quality Control



170

Packaging

0.00

Packaging

Memo

0.00

Packaging

Identify and stock in kanban rack Location: X-TUBE CELL

1 - - AWM 9-11-30

180

QC21- Final Inspection - Work Order Release

0.00

QC

Memo

0.00

Quality Control

09/11/30 HJ

Pl 09-11-30
(1)

Picklist Print

November 9, 2009 10:35:51 AM

Page 1

Work Order ID: 53560



Parent Item: D212-664-201TRNRevC



Parent Item Name: Crosstube Turning Detail

Start Date: 09/11/2009

Required Date: 19/11/2009

Comments:

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
D6006-129RevA		Manufactured	No			120	Each	56.0000	1.0000			



Crosstube Material



Q.m 09-11-26

Warehouse

Loc Qty

Loc Code

Location

Main Warehouse

LG

56

23970

2

26550

15

34690

11

38338

28

1

DART AEROSPACE LTD		Work Order:	53560
Description: Crosstube Assembly (205/212 High Aft)		Part Number:	D212-664-241
Inspection Dwg: D212-664-241 Rev: C		Page 1 of 1	

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

Inspection Sheet	Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	0.200	+/-0.010	0.200	/			
	R0.063	+/-0.010	R0.063	/			
	2.990	+0.005/-0.000	2.995	/			
	5.237	+/-0.030	5.237	/			
	2.600	+0.005/-0.000	2.605	/			
	2.686	+0.005/-0.000	2.690	/			
	2.770	+0.005/-0.000	2.774	/			
	2.854	+0.005/-0.000	2.856	/			
	2.938	+0.005/-0.000	2.940	/			
	3.021	+0.005/-0.000	3.025	/			
	3.133	+0.005/-0.000	3.135	/			
	3.179	+0.005/-0.000	3.180	/			
SIDE B	0.200	+/-0.010	0.200	/			
	R0.063	+/-0.010	R0.063	/			
	2.990	+0.005/-0.000	2.995	/			
	5.237	+/-0.030	5.237	/			
	2.600	+0.005/-0.000	2.605	/			
	2.686	+0.005/-0.000	2.690	/			
	2.770	+0.005/-0.000	2.774	/			
	2.854	+0.005/-0.000	2.856	/			
	2.938	+0.005/-0.000	2.940	/			
	3.021	+0.005/-0.000	3.025	/			
	3.133	+0.005/-0.000	3.135	/			
	3.179	+0.005/-0.000	3.180	/			
	124.36	+/-0.020	124.370	/			

Measured by:	Q.M	Audited by:	AUM	Prototype Approval:	N/A
Date:	09.11.26	Date:	9.11.20	Date:	N/A

Rev	Date	Change	Revised by	Approved
A	05.04.27	New Issue (P/O D412-664-201)	KJ/JLM	
B	06.03.09	Tolerance for 5.237 was +/-0.001	KJ/JLM	
C	07.05.08	Dwg Rev. updated	KJ/JLM	

Item	Qty -241	Qty -241B	Part Number	Description
1	X		D212-664-241	CROSSTUBE ASSEMBLY (205/212 HIGH AFT)
2		X	D212-664-241B	CROSSTUBE ASSEMBLY (214 HIGH AFT)
3	1	1	D6006-129	CROSSTUBE
4	2	2	D2940-1	SUPPORT
5	4	4	D3595-063-530	RUBBER CUSHION
6	4	4	MS21920-28	CLAMP (OR MS21920-30)
7	A/R	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6006-129
FINISHED LENGTH = 124.362±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D212-664-XXX" AND BATCH NUMBER ON INSIDE OF CUFF
USING VIBRATING STYLUS.
- 7) WEIGHT: D212-664-241 = 44.2 lbs (PER IIN-D212-664)
D212-664-241B = 44.2 lbs (PER IIN-D212-664)
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 5 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2940-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2940-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-28 CLAMPS (OR -30) WITH D3595-063-530 RUBBER CUSHIONS TO SECURE THE D2940-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE SUPPORT.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

SHOP COPY
RETURN TO
ENGINEER
UNCONTROLLED
SUBJECT TO APPROVAL
WITHOUT
WORK ORDER

NO. 53540
BT 09-11-9

RELEASED
2009-10-29

D	REFORMAT/REVISE GENERAL NOTES/PART LIST; REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS; ADD -241B (ZN D4-2, B4-2); REMOVED REF & ADD TOLERANCES (ZN D8-3 & C4-3, C6-3 & A8-3); RELOCATED FLAG #6 PER PAR 08-046 (ZN A5-3); MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4	RF	09.09.30
C	REMOVE -1009 ABRASION STRIP; ADD MAGNOBOND 6398, CUSHION, REVERSE CLAMPS	PH	07.03.08
B	ADD HOLES FOR COMPATABILITY WITH BHT/AA SKIDTUBES	PH	05.02.04
A	NEW ISSUE	PH	00.12.12
REV.	DESCRIPTION	BY	DATE
DESIGN	PH	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	92	DRAWING NO.	REV. D
MFG. APPR.	DS	D212-664-241	SHEET 1 OF 4
APPROVED	14	TITLE	SCALE
DE APPR.	#	CROSSTUBE ASS'Y (205/212 HI AFT)	NTS
DATE	09.09.30	COPYRIGHT © 2000 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	



